CLEAN WATER FOR LIFE

Wet Weather Management Plan

Michael B. Coleman, Mayor

As residents of Columbus and Central Ohio, we face a critical challenge. For many years, sewage from our city sewer system has overflowed into our rivers and streams during periods of rain. Sewer overflows were considered an acceptable practice when these sewers were built decades ago, long before current environmental standards and advances in engineering and technology. Today, we know there is a better way.

Please read this brochure to learn how the City of Columbus is working to provide residents and businesses with a comprehensive, yet affordable, plan for wastewater management in the future.

City of Columbus, Ohio

Project CLEAN RIVERS

Department of Public Utilities

Message From the Director

On July 1, 2005, the City of Columbus delivered a Wet Weather Management Plan to the Ohio Environmental Protection Agency that included a comprehensive capital program to improve the Columbus sewer system. The plan, part of the Project Clean Rivers initiative announced in 2002, addresses sewer overflows in waterways and sewer backups in basements.

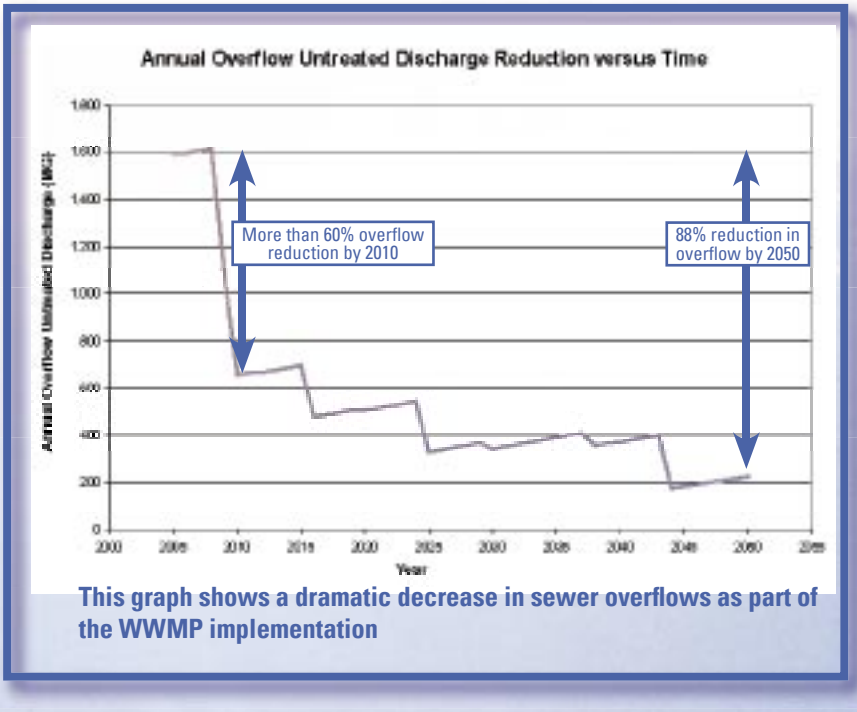
Highlights of the plan include an estimated $2.5 billion dollar investment in improvements to the Columbus sewer system over the next 40 years. This investment will be in addition to current projects already planned or underway, such as the ongoing rehabilitation of older sewers in Clintonville and Driving Park. The City will address sanitary sewer overflows by constructing two, 14-foot diameter tunnels, totaling 25 miles. One on the west side near the Olentangy River from approximately Bethel to Frank Roads. The second tunnel, on the east side near Alum Creek, will run from approximately Morse Road to just south of I-270.

The City has identified 12 "Priority Areas" to receive additional attention to solve localized sewer issues. These neighborhoods have overflows and backups which will not be entirely solved by the new tunnels.

The older "combined" (sewage and storm water in one pipe) sewer system serving the downtown and surrounding areas is currently responsible for more than 90 percent of the bacteria in the Scioto River in an average year. This is unacceptable. By 2010, the planned improvements will reduce the impact of the combined sewer overflows (CSOs) to the river to only 30 percent of the bacteria present today and by 2025, to only seven percent of the current amount. The CSOs will be reduced by 70 percent by 2010, and by more than 99 percent by 2025. A new sewer to be built from Whittier Street to the Jackson Pike Wastewater Treatment Plant will be among the improvements made to address these overflows.

Although the City is proposing a 40-year plan, more than 85 percent of the average annual overflow volume reduction is expected during the first 20 years of the program.

The City conducted an affordability analysis to determine whether its rate payers could afford the projects identified in the plan. While the study found some burden would be created for our residents, it also revealed spreading the debt payment over a 40-year time frame is reasonably affordable.



This graph shows a dramatic decrease in sewer overflows as part of the WWMP implementation

The Wet Weather Management Plan will clean up pollution in our waterways and prevent basement backups, making Columbus neighborhoods healthier, safer places to live. The improvements will help fulfill Mayor Michael B. Coleman's vision of making Columbus the best place to live, work and raise a family. I invite you to learn more about the City of Columbus Project Clean Rivers initiative.

Cheryl Roberto

Cheryl Roberto, Director
Department of Public Utilities

What Is the Wet Weather Management Plan (WWMP)?

Columbus sewer system capacity during dry weather is adequate, but is inadequate during heavy rains. In light of this, Columbus entered into two agreements with the State of Ohio; one in 2002 to stop sanitary sewer overflows into our rivers and streams, and another in 2004 to reduce combined sewer overflows. A comprehensive set of solutions and improvements – the Wet Weather Management Plan – will reduce pollution in our environment and improve customer service.

Combined Sewer Overflows (CSOs)

The combined sewer system, in the downtown and surrounding areas, contains some of Columbus' oldest sewers which were designed to collect wastewater and storm water in a single pipe. Overflows discharge into waterways when the flow exceeds capacity. The most active overflow is located at the Whittier Street Storm Tanks, discharging more than one billion gallons into the Scioto river during a typical year, and creating 85 percent of the annual CSO discharge volume. Under the proposed plan:

- Flows from these tanks will be sent to a new high-rate, physical/chemical, treatment facility near the Jackson Pike Wastewater Treatment Plant.
- Other CSOs will be captured in a new sewer and transported to the wastewater treatment plants.
- New storage facilities will be built, and some sources of stormwater removed from the combined system.

By 2010, full biological treatment will be provided for more than two-thirds of the annual overflow volume. By 2025, CSO discharges will be reduced to only four events in a typical rainfall year at one location, and zero at all other locations.

Sanitary Sewer Overflows (SSOs)

A Large Scale System Strategy was developed in the Wet Weather Management Plan to address wet weather overflows from the separate sanitary sewer system. This strategy features two, 14-foot diameter tunnels, totaling 25 miles, one along the Olentangy River and the other along Alum Creek. These

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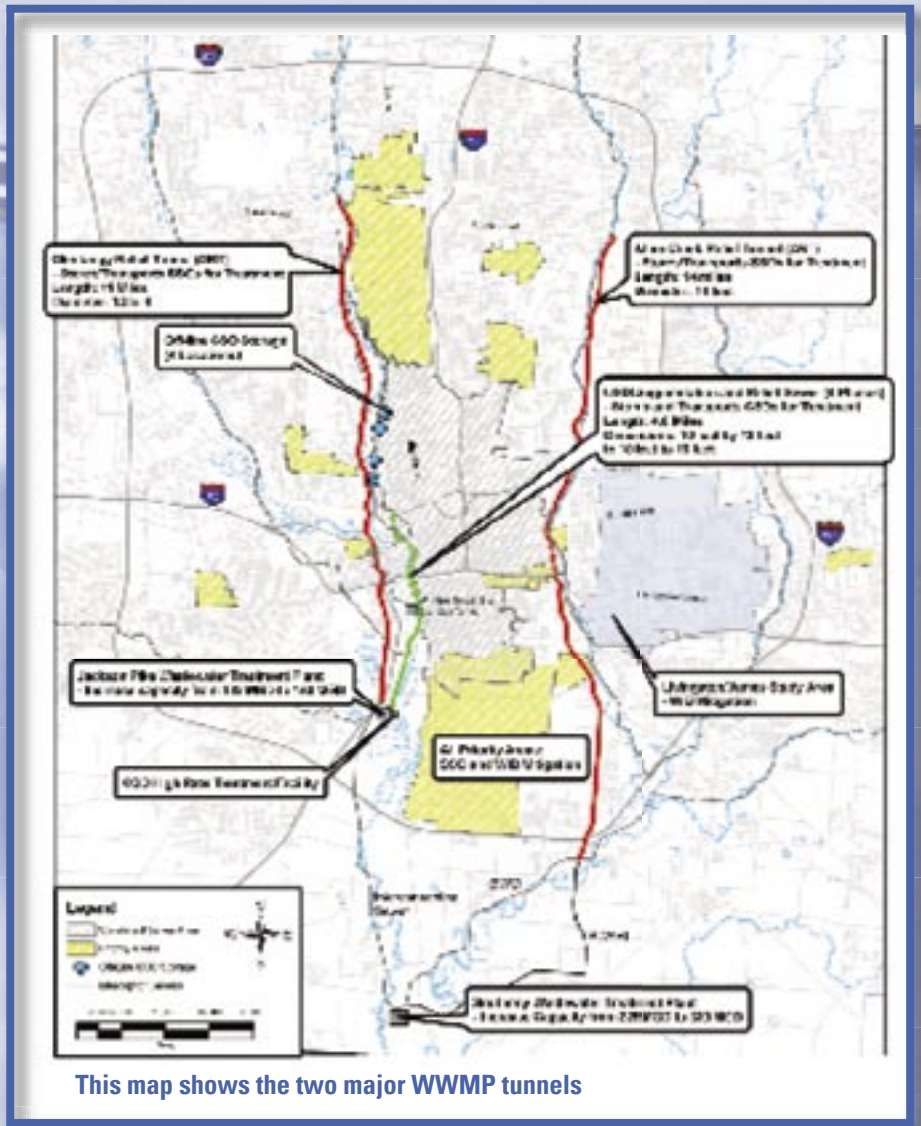
Tunnel Characteristics:

Names:	Olentangy Relief Tunnel (ORT) and Alum Creek Relief Tunnel (ART)
Purpose:	Provide storage and conveyance
Depth:	50 to 150 feet
Diameter:	14 feet
Locations:	ORT – Frank Rd. north to Bethel along the west bank of the Olentangy, approximately 12 miles ART – Groveport Road north to Morse Road along Alum Creek, approximately 14 miles
Features:	Olentangy Pump Station up to 250 MGD* to pump water from ORT to treatment plants

Yellow regions are designated as Priority Areas



This map shows the two major WWMP tunnels

** (MGD = million gallons per day)*

WWMP *from page 2*

proposed tunnels will store and transport flows, to the treatment plants – flows that otherwise would have discharged into our rivers untreated. When the projects are completed, SSOs should only occur once in 10 years, on average. The tunnels also will help reduce basement backups in some areas.

Neighborhood "Priority Areas"

Some sewer system capacity issues are too far upstream to be solved by the new tunnels. Twelve such Priority Areas were identified in the Wet Weather Management Plan, each with an individual plan in which SSOs and basement backups would be addressed. The overflows from these areas usually affect smaller streams with less capacity to handle them. Therefore, these projects are scheduled relatively early in the program. Following improvements in these areas, SSOs will occur on average once every five to 25 years, depending on the area. In most of these areas, the solutions will begin by reducing the amount of storm water entering the system.

Maximizing Wastewater Treatment Plant Capacity

As new improvements in the collection system are built, the city will need to expand treament facilities at the Jackson Pike and Southerly plants to treat the additional wastewater. The challenge for a biological treatment plant is to maintain the microbes, needed to break down pollutants naturally, without washing them out by pushing too much flow through the plants. Improvements will safely increase treatment capacity at both plants by nearly 50 percent by 2010, expanding from 330 to 480 million gallons per day.

Public Input

Input from various stakeholder and community groups was sought during development of the plan, going back to 2003.

- A public advisory group participated in a series of workshops
- The Columbus Sewer and Water Advisory Board provided input on program affordability
- Three public meetings were held 2004 - 2005
- Other public forums have included Columbus City Council hearings.

Related documents are available to the public on the Project Clean Rivers web site at www.sewers.columbus.gov. Comments on the plan are welcome at DOSD@columbus.gov.

Priority Areas

- Castle-Williams
- Plum Ridge
- Winslow
- Sullivant Avenue
- Preston Road
- Northwest Alum Creek (Weldon-Lakeview)
- Early Ditch (Binns-Wicklow)
- Miller-Kelton
- Barthman-Parsons
- W. Fifth Avenue
- Clintonville-Whetstone Area
- Cleveland-Ferris

* The Livingston/James area also will be studied and improvements will be made there to reduce sewer backups.

Plan Benefits

- An estimated 1.4 billion gallons of annual overflow reduction after the plan is completed
- Over 85% of the average annual reduction in overflows will occur in the first 20 years
- Some overflows will occur on average only once every 10 years by 2030
- Significant reductions of overflows by 2010
- Improved level of service in City's main trunk sewers
- Improved level of service in the Priority Areas reducing overflows to once every 5-25 years, depending on the area
- Improved level of control over combined sewers
    - Zero combined overflows except near the Jackson Pike High Rate Treatment Plant facility in a typical year
    - Only four untreated overflows near Jackson Pike in a typical year
- Increased treatment capacity at our wastewater treatment plants and reduced plant bypasses
- Significant reduction of sewer backups into homes

Downtown Columbus on the Scioto River

How Will This Plan Affect Me?

This plan will be the largest investment in public utilities Columbus has ever made. Unless additional funding sources become available, the projects will be funded by sewer rate payers. The large-scale, comprehensive nature of the Wet Weather Management Plan makes affordability a primary concern. Columbus is not alone in this venture; many cities are facing similar wet weather challenges.

An affordability analysis was conducted to determine the community's ability to pay for the improvements. Factors in the study included:

- Vulnerable populations among ratepayers
- Housing
- Local economy
- Business health

The city considered 20, 30, and 40-year schedules, cost, and environmental benefits. The 40-year plan was selected because:

- ✓ It makes the program more affordable by paying over a longer span
- ✓ Financial effects and other practical issues eliminated the 20-year plan
- ✓ The 30 and 40-year plans were found to be similar, as the most environmentally beneficial projects are scheduled for the program's early phases

How High Might Rates Go?

The analysis found sanitary sewer rates could reach, at the highest point, as much as 2.6 times the current average rate of $72 per quarter. The rate increases for this plan will not apply to water or storm water rates. Trigger mechanisms are built into the plan to protect our customers and our economy; rates will be reviewed annually to ensure the program remains affordable. We propose to slow the schedule if rates exceed predefined levels. Similar steps will be taken if economic indicators show the rate increases are unacceptably detrimental to our economy.

Completion of the plan improvements will prevent 1.4 billion gallons of sewage from discharging annually into our waterways and result in a significant reduction in sewer backups into basements. In addition, the community will benefit from a cleaner, healthier environment, making Columbus an attractive city for living, working, and recreation.

Our local rivers are central to many cultural activities that support our economy, like the annual Columbus Arts Festival on the Scioto riverfront downtown.

Improvements Are Comprised of Four Solutions	
Tunnels & Pump Station	$1.5 Billion
CSO Solutions	$0.5 Billion
Priority Areas & Other Improvements	$0.2 Billion
WWTP Improvements	$0.3 Billion
Total Wet Weather Program	$2.5 Billion
Other CIP Projects	$2.9 Billion
Total DOSD CIP Budget (40 years)	$5.4 Billion

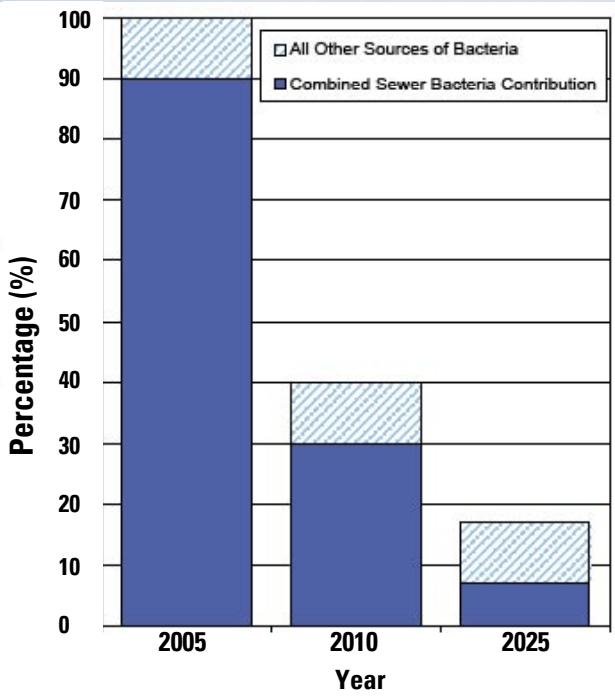
Columbus' Clean Water Commitment

For the Wet Weather Management Plan, an extensive stream quality study ("The Characterization Report") was performed. Data was collected from numerous locations along the Olentangy and Scioto Rivers; the Big Walnut, Alum, and Blacklick Creeks. Over 3,000 samples were collected from streams, discharges from the CSO, SSO, and storm water outlets; and the wastewater treatment plants. The analysis also included a biological study, a mussel survey, and a toxicity evaluation of the receiving waters.

Conclusions:

- ✓ Columbus streams met all chemical water quality standards
- ✓ Species not seen in our rivers for more than a decade were found
- ✓ The waterways have high levels of bacteria during and after rains. However, overflows are not the only contributor. Agricultural runoff and other "non-point sources" of water pollution are also significant contributors.

This data was used to predict outcomes and cost-effectiveness of the various wet weather improvements considered. This Characterization Report is available on the Division of Sewerage and Drainage web site found at www.sewers.columbus.gov under Project Clean Rivers.



Note: The 2005 system is the baseline used for comparison of future results

Columbus' Project Clean Rivers Program

The Wet Weather Management Plan is just one major piece of the overall Columbus Project Clean Rivers initiative. The program includes other services that have been underway for several years including sewer infiltration and inflow studies, rehabilitation of older sewers using trenchless technology, improvements in operation and maintenance, stormwater management, an industrial pre-treatment program and public education efforts such as the "We All Live Downstream" program.

To review the Wet Weather Management Plan, please call 645-7176 to make an appointment. It also may be reviewed at the downtown Columbus Metropolitan Library, or you can purchase a CD set at 910 Dublin Road, third floor Permit Office.

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Michael B. Coleman, Mayor

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